Caltrans Comments

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August 25, 2004

Ms. Jenny Newman
California Regional Water Quality Control Board
Los Angeles Bay Region
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Email: jnewman@rb4.swrcb.ca.gov

RE: Comments on the "Proposed amendment to the Water Quality Control Plan for the Los Angeles Region to incorporate a Total Maximum Daily Load for Metals for the Los Angeles River and Tributaries"

Dear Ms. Newman:

The current draft staff report for "Total Maximum Daily Load for Metals Los Angeles River and Tributaries" and proposed Basin Plan amendment includes provisions pertaining to the Department of Transportation's (Department) responsibility for reducing metals loads to Los Angeles River and Tributaries. We are supportive in efforts to improve water quality in the Los Angeles River, but concerned with the numeric targets, implementation plan and economic analysis that are proposed.

The Los Angeles River is an effluent dominated system, which would have little or no flow during substantial parts of the year. Under natural conditions the LA River cannot support many of the designated uses assigned to it during dry weather, such as warm freshwater habitat. Consequently, the development of a TMDL for dry weather conditions to support aquatic life is not appropriate.

The TMDL draft staff report and the Basin Plan amendment acknowledge assigning load and waste load allocations based on watersheds. Approximately 6,950 acres of the Department's right-of-way within Region 4 drains to the Los Angeles River. This area represents approximately 1.3% of the total watershed (834 square miles) that flows to the Los Angeles River. Given the small fraction of the runoff that the Department contributes to this watershed, the Department's equitable annual loading and share allocation must be based on tangible data.

The economic analysis described in the TMDL staff report discounts the actual cost of installation of infiltration and sand filter systems documented by the Department. Although a third party study did find that reported costs were lower in other areas, only

the Department's facilities had actual bid costs for each site (Caltrans, 2001). In addition, the pre-bid engineer's cost estimate based on unit prices compiled from historical highway projects were very similar to the actual costs incurred. The TMDL draft staff project report grossly underestimates the cost of BMP implementation and does not consider lifecycle costs including operation and maintenance costs. Furthermore, the Department is limited in available land within its right-of-way. This may require purchase of additional land to accommodate the space required for installation of BMPs. Our preliminary cost to provide treatment to 40% of our drainage area is a minimum of $300 million (based on lifecycle unit cost for sand filters – Caltrans, 2004). This minimum cost estimate assumes treatment of 40% of the Department's contributing drainage area of 1.3% of the LA River watershed (5-acre area treated per sand filter site). The minimum cost does not consider land cost, design engineering, permitting and mitigation costs, or traffic control costs, which if needed may escalate the minimum cost by two to three times.

The following comments highlight some of our specific concerns regarding the report, modeling approach, results, and draft TMDL.

- The LA River is concrete lined over much of its length and would not fully support a natural aquatic system even if the water was of sufficient quality. Consequently, the TMDL proposed will not achieve the desired result.

- Calibration and verification of the low flow model is based on only the data for a single day. This is an insufficient sample on which to base a model.

- Although the report states that Publicly Owned Treatment Works (POTWs) "are generally discharging effluent that meets the water quality standards," it is clear from Table 20, in the TMDL Staff Report page 43, that these discharges routinely exceed water quality standards for dissolved copper.

- Since the dry weather model "is not able to represent all the temporal and spatial variability observed in the in-stream metals concentrations," it seems contradictory to conclude that the "model provides a reasonable assurance that we understand the relationship between in-stream loads and targets."

- The calibrated wet weather model also does a poor job at predicting stream concentrations and is not sufficiently accurate for developing a TMDL with the substantial costs associated with the retrofitting of stormwater drainage systems. An example between model output and observed values is shown in Figure 1 (Figure C-5 in Appendix C of Appendix II of the Staff Report). In general, the model predicts maximum concentrations that far exceed any observed concentrations.

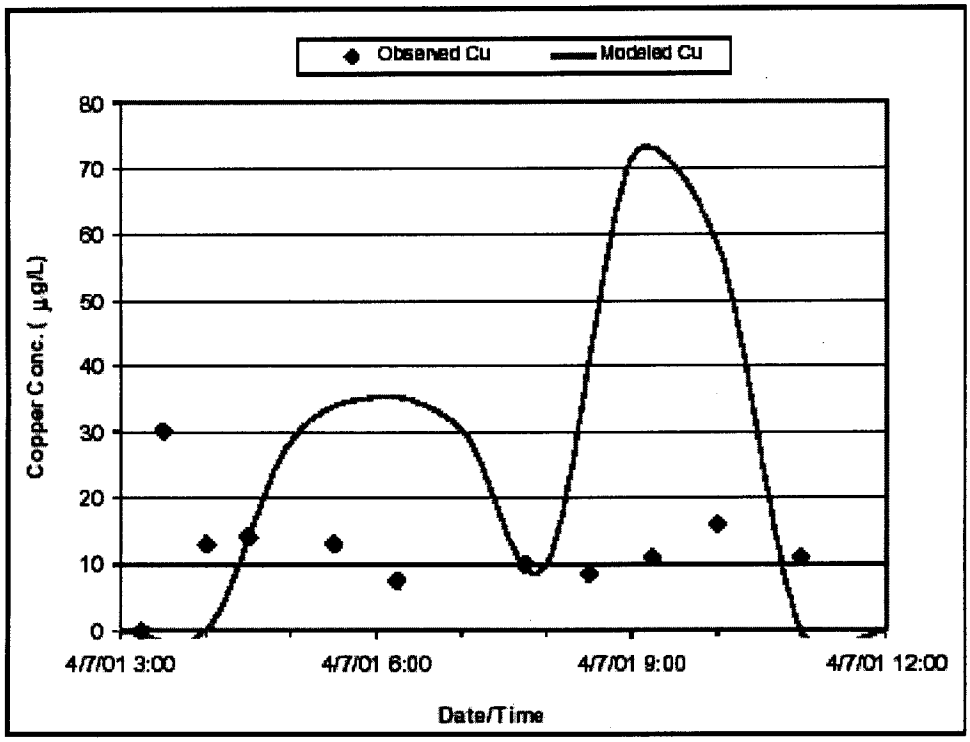

Figure 1 Observed and predicted Copper at Arroyo Seco

- Table 30, page 56 of the TMDL Staff Report, allows the POTW to discharge copper during dry weather at concentrations that exceed the water quality objective for copper. By allowing the POTWs to discharge a disproportionate share of the copper loading, the MS4 permittees are unfairly penalized.

- In Section 5.2 of the L.A. River TMDL, the hydrodynamic water quality model that was used to generate the wet-weather load duration curves is described. The model relies on several input parameters for its calculations to accurately predict actual hydrologic and hydraulic responses. One of the most important of the parameters is land use. There are seven unique land use categories that were entered into the model: residential, commercial, industrial, open, agriculture, water, and other. Transportation is not among these categories, but represents a hydrologically discrete land use that should be incorporated into the model. This is especially true since The Department and the MS4s are held to specific WLAs.

- The draft TMDL uses aquatic life water quality criteria based on the following factors: acute and chronic conversion factors, slope factors, intercept terms, hardness values, and water effects ratios. Water effects ratios are site-specific ecotoxicological coefficients that range from 0 to 1. The TMDL assumes a water effects ratio of 1, meaning that all of the measured metals are biologically available and toxic. This assumption may drastically over-state the actual toxicity of the concentrations that are observed onsite. A site-specific ecotoxicological evaluation

of the water effects ratios at L.A. River should be undertaken to ensure the accuracy of the aquatic life criteria. Lee and Jones-Lee (2000) assert that a basic problem with using US EPA water quality criteria as discharge limits includes the failure to properly incorporate the aquatic chemistry of constituents into their implementation as state standards. Further, ambient waters and their sediments contain a wide variety of constituents which detoxify/immobilize the toxic/available forms of potential pollutants such as heavy metals.

- The method of presentation of wet weather load reductions (i.e. the load–duration curve) is ineffective and confusing. The concentration-based targets that are supposedly derived from these model generated curves are apparent, but their determination is not clearly elaborated. More detail needs to be added to allow for comprehension of the model outputs.

- The TMDL reports that the wet weather "model tends to overestimate loads, actual reductions required to meet the waste load allocations are likely less than predicted by the load-duration curves." Consequently, the required reductions should be decreased to reflect this bias.

- The economic analysis is based on an unsubstantiated assumption that compliance can be achieved without structural controls for 60 percent of the watershed. The basis for this determination needs to be clarified.

- The economic analysis assumes that 20 percent of the watershed could be treated with infiltration facilities. The technical feasibility for implementing infiltration devices needs to consider site constraints such as soil characteristics, proximity to groundwater, potential groundwater contamination, adequate access, and safety for motorists along The Department facilities.

Thank you for the opportunity to comment. If you have any questions, please contact Keith Jones at (916) 653-2351 or Robert Wu at (213) 897-8636.

Sincerely,

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References:

Lee, G. Fred., Jones-Lee, Anne. 2000. *Development of TMDL Goals and Wet Weather Standards for the Control of Heavy Metals in Urban Stormwater Runoff.* Proceedings of the Water Environment Federation's 73rd Annual Conference, Anaheim, CA, October, 2000, Online.

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